

What is claimed is:

1. A process for the production of N,N-dimethylaminopropylamine from N,N-dimethylaminopropionitrile by low pressure hydrogenation comprising:

feeding hydrogen and N,N-dimethylaminopropionitrile into a low-pressure reactor containing a sponge nickel catalyst, at least one Group IA alkali metal hydroxide, and water to form a reaction medium;

heating the reaction medium to a temperature of about 70 °C to about 100 °C;

pressurizing the reactor to a pressure of about 45 psig to about 500 psig; and

hydrogenating the nitrile to form N,N-dimethylaminopropylamine,
2. The process of claim 1, wherein the selectivity of N,N-dimethylaminopropionitrile to N,N-dimethylaminopropylamine is greater than about 99.60 %.
3. The process of claim 1, wherein the selectivity of N,N-dimethylaminopropionitrile to N,N-dimethylaminopropylamine is greater than about 99.90 %.
4. The process of claim 1, wherein the Group IA alkali metal hydroxide is selected from the group consisting of sodium hydroxide, potassium hydroxide, rubidium hydroxide, cesium hydroxide and mixtures thereof.
5. The process of claim 1 wherein the Group IA alkali metal hydroxide is potassium hydroxide.

6. The process of claim 1 wherein the Group IA alkali metal hydroxide is sodium hydroxide.
7. The process of claim 1 wherein the Group IA alkali metal hydroxide is a mixture of sodium hydroxide and potassium hydroxide.
8. The process according to claim 1 wherein the temperature is between 85 °C and 95 °C.
9. The process of claim 1 wherein the pressure is between 45 psig and 300 psig
10. The process of claim 1 wherein the pressure is between 45 psig and 150 psig.
11. The process of claim 1 wherein the pressure is between 45 psig and 110 psig.
12. The process of claim 1 wherein the amount of water is about 0.1 wt. % to about 10 wt. % of the reaction medium.
13. A process for the production of N,N-dimethylaminopropylamine from N,N-dimethylaminopropionitrile by low pressure hydrogenation comprising:

feeding hydrogen and N,N-dimethylaminopropionitrile into a low-pressure reactor containing a catalyst, at least one Group IA alkali metal hydroxide, and water to form a reaction medium;

heating the reaction medium to a temperature of about 70 °C to about 100 °C;

pressurizing the reactor to a pressure of about 45 psig to about 150 psig; and

hydrogenating the nitrile to form N,N-dimethylaminopropylamine.

14. The process of claim 13, wherein the catalyst is a sponge nickel catalyst.
15. The process of claim 13, wherein the catalyst is a cobalt catalyst.